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(54) VERTICAL TYPE SEMICONDUCTOR DEVICE AND MANUFACTURE THEREOF

(57) Abstract:

PURPOSE: To increase withstanding voltage between a source and a drain by forming a groove section to a polycrystalline silicon film for a gate electrode.

CONSTITUTION: A p-type semiconductor layer having structure, in which a V-MOS, a U-MOS and a DSA-MOS are mixed, and shaping a channel region is formed to a projecting shape by shaping a groove, thus deeply forming the p-type semiconductor layer. Since a polycrystalline silicon film 6a for a gate electrode is shaped in the groove section 12, a diffusion in the lateral direction is stopped by the edge of the groove section 12 even when the p-type semiconductor layer 4 is diffused and formed deeply, thus shaping the p-type semiconductor layer 4 deep in the vertical direction and shallow in the lateral direction. Accordingly, an element having narrow channel length, large gm, low ON resistance or large withstanding voltage between a source and a drain can be manufactured.

